WHAT IS CLAIMED IS:

1. A system for long-term preservation of a data record, the system comprising:

(a) an input handler for accepting a preservation request to preserve said data record, for accepting input metadata associated with said data record to form a metadata record, and for conversion of said data record and said metadata record to generate a formatted data record;

(b) a data processor for accepting said formatted data record, for generating an index entry corresponding to said formatted data record, and for encoding, from said formatted data record, a print file;

(c) a preservation medium for recording said print file for long-term preservation;

(d) a writer for marking said print file onto said preservation medium to form a human-readable preserved data record;

(e) an indexing database for storing said index entry from said data processor corresponding to said human-readable preserved data record;

(f) a storage apparatus for safekeeping of said human-readable preserved data record.

2. The system of claim 1 further comprising:

(g) a retrieval handler for accepting a retrieval request for said human-readable preserved data record and, according to said retrieval request, for obtaining said index entry and for providing an instruction for retrieval of said human-readable preserved data record from said storage apparatus; and

(h) a data recovery apparatus for obtaining, from said human-readable preserved data record, said data record and said input metadata record.

3. The system of claim 1 wherein said human-readable preserved data record is encoded according to an extensible markup language.

4. The system of claim 3 wherein said extensible markup language is XML.

5. The system of claim 1 wherein said data record encodes an image.

6. The system of claim 5 wherein said image comprises a color separation.

7. The system of claim 5 wherein said image is in grayscale form.

8. The system of claim 1 wherein said data record encodes audio.

9. The system of claim 1 wherein said data record encodes numerical data.

10. The system of claim 1 wherein said data record encodes motion image data.

11. The system of claim 1 wherein said data record encodes animation image data.

12. The system of claim 1 wherein said data record encodes image depth data.

13. The system of claim 1 wherein said preservation medium is photosensitive.

14. The system of claim 1 wherein said preservation medium comprises a metal plate.

15. The system of claim 1 wherein said preservation medium comprises a thermal medium.

16. The system of claim 1 wherein said preservation medium is an electrophotographic medium.

17. The system of claim 1 wherein said writer comprises a laser.

18. The system of claim 1 wherein said data record encodes binary data.

19. The system of claim 1 wherein said indexing database is a relational database.

20. The system of claim 1 wherein said indexing database is a hierarchical database.

21. The system of claim 2 wherein said data recovery apparatus comprises a scanner.

22. The system of claim 2 wherein said data recovery apparatus comprises a device that performs optical character recognition.

23. The system of claim 2 further comprising an operator interface for accepting said retrieval request.

24. The system of claim 1 wherein said data processor further supplements said metadata record within said formatted data record to add processing data to said metadata record.

25. The system of claim 24 wherein said processing data comprises information about said writer.

26. The system of claim 24 wherein said processing data comprises information about said preservation medium.

27. The system of claim 24 wherein said processing data comprises image quality information.

28. The system of claim 2 wherein said data processor further supplements said metadata record within said formatted data record.

29. The system of claim 28 wherein said metadata record comprises information concerning said data recovery apparatus.

30. The system of claim 1 wherein said preservation request originates from a browser at a networked computer.

31. The system of claim 1 further comprising a processor for developing said human-readable preserved data record on said preservation medium.

32. The system of claim 1 further comprising a network for connecting said writer to said data processor.

33. The system of claim 1 wherein said metadata record comprises specifications about the metadata format.

34. The system of claim 1 wherein said input handler further provides preprocessing of said data record in order to condition said formatted data record for said writer.

35. The system of claim 2 wherein said data recovery apparatus provides postprocessing of said data record.

36. The system of claim 24 wherein said input handler further supplements said metadata record.

37. The system of claim 24 wherein said processing data comprises information about said index entry.

38. The system of claim 24 wherein said processing data comprises information about said writer.

39. The system of claim 24 wherein said processing data comprises information about said preservation medium.

40. The system of claim 24 wherein said processing data comprises color reference information.

41. The system of claim 1 wherein said formatted data record comprises machine-readable data.

42. The system of claim 1 wherein said preservation medium is monochromatic.

43. The system of claim 1 wherein said preservation medium is polychromatic.

44. The system of claim 5 wherein said image comprises color-encoded data.

45. The system of claim 1 wherein said writer comprises a chemical bath for processing said preservation medium.

46. The system of claim 1 wherein said writer comprises an apparatus that applies thermal energy for developing said preservation medium.

47. The system of claim 1 wherein said data record comprises data from a Web browser.

48. The system of claim 1 wherein said data record comprises an XML schema.

49. The system of claim 24 wherein said processing data comprises information about said storage apparatus.

50. A preservation apparatus for maintaining at least one human-readable preserved data record on a preservation medium, where said at least one human-readable preserved data record has a predetermined data format, the apparatus comprising:

(a) a data processor for accepting a data record that comprises input metadata, for generating a print file from said data record, and for generating an index entry corresponding to said data record;

(b) a writer for marking said print file onto said preservation medium to form said human-readable preserved data record;

(c) an indexing database for storing said index entry; and

(d) a storage apparatus for safekeeping of said human-readable preserved data record.

51. The apparatus of claim 50 wherein said indexing database is a relational database.

52. The apparatus of claim 50 wherein said indexing database is a hierarchical database.

53. The apparatus of claim 50 wherein said writer comprises a laser.

54. The apparatus of claim 50 wherein said data processor further supplements said data record with processing metadata.

55. The apparatus of claim 54 wherein said processing metadata comprises information about said writer.

56. The apparatus of claim 54 wherein said processing metadata comprises information about said preservation medium.

57. The apparatus of claim 54 wherein said processing metadata comprises information about image quality.

58. The apparatus of claim 54 wherein said processing metadata comprises information about said index entry.

59. The apparatus of claim 54 wherein said processing metadata comprises color reference information.

60. A system for long-term preservation of a plurality of human-readable preserved data records on a preservation medium, the system comprising:

(a) an interface apparatus for accepting an operator request to preserve an input data record, for accepting said input data record, and for

combining said input data record with a metadata record comprising data about said input data record in order to form a formatted data record; and

(b) a preservation apparatus for accepting said formatted data record from said interface apparatus, for generating an index entry corresponding to said formatted data record and for storing said index entry in an indexing database, for converting said formatted data record into a printer-ready format suitable for an imager, for writing onto said preservation medium using said imager to form said human-readable preserved data record, and for maintaining said human-readable preserved data record for safekeeping.

61. A method for long-term preservation of a data record, the method comprising:

(a) encoding said data record in a human readable format as an encoded data record;

(b) encoding a metadata record corresponding to said encoded data record; and

(c) recording said encoded data record and said metadata record on a preservation medium, as a human-readable preserved data record.

62. The method of claim 61 wherein the step of encoding said metadata record comprises the step of encoding in an extensible markup language.

63. The method of claim 61 wherein the step of encoding in an extensible markup language comprises the step of encoding in XML data format.

64. The method of claim 61 wherein the step of encoding the data record in a human readable format comprises the step of encoding in a character-based encoding scheme.

65. The method of claim 64 wherein the step of encoding in a character-based encoding scheme comprises the step of encoding in Base-64 format.

66. The method of claim 61 wherein the step of encoding said data record in a human-readable format further comprises the step of generating, for said data record, encoding metadata that describes the encoding process.

67. The method of claim 66 wherein the step of encoding a metadata record comprises the step of receiving said encoding metadata.

68. The method of claim 61 wherein said metadata record comprises information needed for obtaining said data record from said human-readable preserved data record.

69. The method of claim 61 wherein the step of recording said encoded data record comprises the step of using a light source to write the data onto said preservation medium.

70. The method of claim 69 wherein said light source comprises a laser.

71. The method of claim 69 wherein said light source comprises an LED.

72. The method of claim 69 wherein said light source comprises an OLED.

73. The method of claim 69 wherein said light source comprises a lamp.

74. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of applying an ink to write the data onto said preservation medium.

75. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of using a thermal printhead to write the data onto said preservation medium.

76. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of recording said encoded data record and said metadata record on a photosensitive medium.

77. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of recording onto a metallic medium.

78. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of recording onto a plastic medium.

79. The method of claim 61 wherein the step of recording said encoded data record and said metadata record on said preservation medium comprises the step of recording onto a thermal medium.

80. The method of claim 61 further comprising the step of:

(d) encoding and recording specifications about said metadata record on said preservation medium.

81. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding machine code instructions.

82. The method of claim 61 further comprising the step of generating an indexing database entry corresponding to said data record.

83. The method of claim 82 wherein the step of encoding said data record comprises the step of encoding said indexing database entry.

84. The method of claim 82 further comprising the steps of:

(a) providing said human-readable preserved data record to a storage apparatus location; and

(b) updating said indexing database entry to form an updated indexing database entry according to information concerning said storage apparatus location.

85. The method of claim 61 wherein the step of encoding a metadata record comprises the step of accepting and including information input by an operator.

86. The method of claim 61 further comprising the step of providing a preview showing said encoded data record.

87. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding audio data.

88. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding motion image data.

89. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding animation data.

90. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding image depth data.

91. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding data obtained using a Web browser.

92. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding HTML data.

93. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding image data.

94. The method of claim 61 further comprising the step of encoding and recording color reference information on said preservation medium.

95. The method of claim 94 wherein said color reference information comprises color index data.

96. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding binary data.

97. The method of claim 61 wherein the step of encoding said data record comprises the step of encoding numerical data.

98. The method of claim 93 wherein the step of encoding said image data comprises the step of encoding grayscale image data.

99. The method of claim 93 wherein the step of encoding said image data comprises the step of encoding color image data.

100. The method of claim 99 wherein the step of encoding said color image data comprises the step of encoding color separation data.

101. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding an XML schema.

102. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding an XML document type description.

103. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding indexing information about said data record.

104. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding information about a writer apparatus.

105. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding information about said preservation medium.

106. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding information about data recovery for said encoded data record.

107. The method of claim 61 wherein the step of encoding a metadata record comprises the step of encoding image quality information about said encoded data record.

108. A method for retrieving a human-readable preserved data record upon receipt of a retrieval request, the method comprising:

(a) correlating said retrieval request to said human-readable preserved data record, using an indexing database entry;

(b) identifying a storage apparatus location wherein said human-readable preserved data record is located, based on said indexing database entry; and

(c) providing an instruction to obtain said human-readable preserved data record from said storage apparatus location.

109. A method for expunging a human-readable preserved data record upon receipt of an expungement request, wherein an indexing database entry is associated with the human-readable preserved data record, the method comprising:

(a) correlating said expungement request to said human-readable preserved data record, using said indexing database entry;

(b) identifying a storage apparatus location wherein said human-readable preserved data record is located, using said indexing database entry;

(c) providing an instruction to obtain, from said storage apparatus location, preservation media containing said human-readable preserved data record;

(d) deleting said human-readable preserved data record on said preservation media; and

(e) removing said indexing database entry.

110. The method of claim 109 wherein the step of deleting said human-readable preserved data record comprises the step of overwriting said human-readable preserved data record on said preservation medium.

111. The method of claim 109 wherein the step of deleting said human-readable preserved data record comprises the step of removing, from said preservation medium, a substrate layer corresponding to said human-readable preserved data record.